The Electric Telegraph.

No. 2.

In our last we explained what electro magnetism was in a general sense, but in a specific sense, it is understood to relate only to the combination of a piece of horse shoe shaped soft iron surrounded with insulated helices of wire connected with a galvanic battery. The soft iron is only magnetic while under the influence of the galvanic current, and is a focus of magnetic power, capable of driving machinery. It is this virtue in the electro magnet, on which the invention of Prof. Morse is based. When the electro magnet is influenced by the galvanic current, it exerts considerable mechanical power, which immediately ceases when the current is broken. It is employing this power and breaking the current, to transmit messages from place to place by extended lines of wire that constitutes the whole invention. The closing and the breaking of the circuit in rapid succession gives the pen lever, a rapid vibratory motion, and a pen lever connected with, but separated at any distance from the battery, obeys this law and exhibits the vibratory motion in the same manner as if it were only separated a few feet. Mr. Alfred Vail expressly says that this is the principle upon which Morse's Electro Telegraph is based, and no one "knows better than he." This invention then some will say "is based upon the principle of Oersted's discovery, viz. the deflection of the needle by an electric current. In 1819 Prof. Schweiger of Halle, invented the wire coil or the Electro Magnetic multiplier, which caused the current to exert a greatly increased force upon the needle, and the *electro magnet* is just a superior substitute, a very superior one, for the *wire coil*." But here let us state the difference between the deflection of the needle by electricity, and the use of the electro magnet for telegraphic purposes. Prof. Morse uses the attractive power of the electro magnet, the deflection of the needle is a different affair.

But who discovered the Electro Magnet? There are many claimants for this honor, but we believe that the real discoverer has been overlooked, whether intentionally or not we will not say. In the Transactions of the Society of Arts for 1825, there is the first description of apparatus to which the name could justly be applied and this is by a Mr. William Sturgeon, of London. Ampere and Davy, had previously, it is true, magnetized steel needles as we described in our last, but there is no evidence that they had any knowledge of the suddenness with which the polarity of soft iron might be reversed by a change in the direction of the current. Prof. Jacobi, of St. Petersburgh, the eminent discoverer of Electrotyping, awards to Mr. Sturgeon in conjunction with Prof. Oersted of Denmark, the discovery of the electro magnet as a focus of magnetic power to propel machinery. To this gentleman also belongs the credit of constructing the first rotary electro magnet engine.

In 1832, Dr. Sculthess, in a lecture before the Philosophical Society of Zurich, gave it as his opinion that a power for mechanical purposes could be obtained by breaking and restoring the current. In 1833 he exhibited a machine which accomplished this, and Jacobi in 1834, laid before the Academy of Sciences of Paris, a plan of an electro magnetic engine. In 1836 Mr. Davenport, a blacksmith, of Philadelphia, turned lathes by electro magnetism. Thus as a motive power electro magnetism had been employed for more purposes than one previous to its first employment for telegraphing in 1837 publicly by Prof. Morse.

The moving of machinery by the electro magnet, is no doubt a different thing from telegraphing—the results are entirely unlike, but we make these statements as historical evidence of the electro magnet being used as a motive power for other purposes than telegraphing years before the first electro magnetic telegraph was constructed Electricity had been employed for telegraphing by an extended line of wire in 1816, by Ronalds, of Hammersmith, England, who published a pamphlet in 1823 describing his apparatus—therefore the application of the *electro magnet* to attract a pen, that by a vibratory motion make marks on a running slip of paper near or at a distance from the battery, constitutes the whole of Professor Morse's invention—This is all that Professor Morse claims himself, and is a different system of telegraphing from the deflection of the needle, although both are based upon *electro magnetism*.

Planing Machines.

We hereby resume the publishing of Planing Machine Patents, and we would call particular attention to this one of Bentham's, granted in 1793, as it is one which covers much of the *debateable land*, of Woodworth's patent, and is therefore of much importance.

Specification of the Patent granted to Samuel Bentham, of Queen Square Place, Westminster, in the County of Middlesex, Esquire; for his Invention of various new and improved Methods and Means of working Wood, Metal and other materials. Dated April 23, 1793.

To all to whom these presents shall come, Now know ye, that in compliance with the said proviso, I the said Samuel Bentham do hereby declare, that my said invention is described in manner following; that is to say:

A saw mill of this sort consists of a saw-frame moving up and down, in which one or more saws are fixed, and a horizontal bed, on which a piece of timber is held, while the bed is moved on towards the saw; the saw-frame is confined to its course by fixed channels. By the up-and-down motion of the saw-frame, a progressive motion is given to the bed on which the piece lies, whereby at every descent of the saw, the piece is cut to a certain depth and at every ascent the piece is advanced; this advancement is made by a rack and pinion, set in motion by a ratchet wheel, of which a tooth is laid hold of by a claw, every time the saw goes up. Thus far, generally speaking, I adopt the same contrivance in my sawing machine. p. 228.

Working by a rotative motion of the tool.—In the instance of circular saws, not to mention boring and grinding tools, working by a rotative motion has already been used, as I understand in a few instances, such as cutting timber into boards, cross cutting logs for firewood, cutting mortises for ships' blocks, cutting the teeth of cog-wheels, and other slight indentures in metal. But the idea of adapting the rotative motion of a tool, with more or less advantage, to giving all sorts of substances any shape that can be required, is my own, and, as I believe, entirely new: I place it, accordingly, among the inventions of which I claim the exclusive property, in as far as it has not yet been reduced to practice by others and in as far as the contrivances here described afford sufficient instruction for producing the effect: To take the simplest mode of fitting up a circular saw, for cutting in this way, conceive a spindle furnished with a circular saw, turning between two centres, as if in an ordinary turning lathe with a rigger or pulley to receive a band. Let the saw be strengthened, and confined to its position, by two flanches one on each side of it of equal diameter one to the other: as this diameter limits the depth of the cut which can be given by the saw, it should therefore be no greater than what is necessary to give the saw the necessary degree of stiffness. Immediately over the spindle fix a bench, of a size adapted to the work you have to perform and crossing the spindle at right angles. In this bench make a slit, for the saw to play in, projecting above it, more or less according to the depth of the piece which it has to cut. Standing now in the direction of the saw, put it in motion in such manner as to make the upper part move towards you, as it turns, shoving the piece on against the saw, it will be cut through. Where a rigger, if small enough not to come in the way of the piece, would be too small to give motion to the saw, its office may be performed by a cog wheel of somewhat less diameter than the flanches; to which cog-wheel you may give motion by another cog-wheel, fixed to a rigger of a larger size, turning upon a separate spindle.

How, by means of a rotative saw to shape a piece from the rough: a piece of wood for example for the state of a log, or a small branch of a tree; or a piece of metal as it comes from the crucible or the forge. 1. The first thing to be done is to give it a straight side: for this purpose, the business is, to advance the piece in a direction exactly straight against the saw. For securing this straightness more methods may be employed than one; the following I found as commodious as any. Cut in the bench a longitudinal channel, in a direction parallel to the saw, and the nearer to it the better. Into the channel or grove insert a bar or tongue, so as to fit exactly, and yet slide with ease, but without projecting above the bench. On this longitudinal bar fix two transverse bars, projecting their whole thickness above the bench; one of them fixed, and the other moveable, so as to be fixed at different distances from the former, the distance being adjustable to the length of the piece which is held between them.

(*To be continued.*)

Treatment of Cholera.

Dr. Maxwell, of Calcutta, who has lately published a "Key to the Cholera" (he himself having had three attacks of the disease,) thus alludes to his recovery from the attacks. My thirst became worse and worse, and I determined to relieve it at all hazards, and not add misery to death. Having made up my mind, the next point was the choice of the particular beverage; there was plain water, whey and barley-water, gruel, congree, &c., wine and water, brandy and water, &c. To the last of these I had a repugnance, as every one has in fully-formed cholera and the others would require time and direction for their preparation which my disease was not able to afford, or I give. Whilst thus ruminating, my eye accidentally fell upon a packet of effervesing soda powders standing among a crowd of other remedies and nostrums on the table. It immediately took my fancy: it struck me as the very thing I wanted, and without further delay I pointed to it, and made signs for a copious draught thereof. It was soon made and soon swallowed; it was extremely refreshing and agreeable, and the thirst was allayed; no nausea succeeded, and the pleasing anticipation remained of having a repetition of the draught whenever I desired. This I was not long in desiring: in fact, almost immediately after I swallowed another, and continued repeating it whenever the thirst became urgent. Instead of retrograding or remaining stationary, I began to improve; the stool became easier, and the spasms less vigorous and vicious.

"I experienced an inclination to sleep, a desire to be covered up, and for something hot to drink (these are the best signs, pointing to the disease escaping from the collapse stage.) I had a large tumbler full of very warm but weak brandy and water made, and drank it off. I fell asleep and had five or six hours of sound repose. I awoke bathed in perspiration, and with the exception of a little stiffness and considerable thirst, I felt perfectly well. The thirst was again relieved by the effervescing draughts, and I followed up the principle with a couple of dishes of that most delectable and pre-eminent of all stomachics, tea."

Spent Tan-Bark may be employed as a Manure.

This substance can easily be dried and converted into charcoal in a similar manner as recommended for charring peat. It may then be mixed with night soil, answering both the purpose of drying and rendering it fit for carriage, at the same time absorbing all the ammonia, &c. It may also be mixed with urine or with animal manure of any kind for similar purposes. Tan-bark, in an uncharred state is of no immediate value as a manure in consequence of the gallic and other acids it contains.

The above extract from an unknown exchange, is something interesting to our farmers, and it is correct too. Unburned tan bark we know to be injurious to vegetation, but when the acid is driven off by heat, its nature is quite different.

Iceland.

Iceland is little less than a mass of lava; and so intense is the energy of volcanic action in that region, that some eruptions of Hecla have lasted six years without ceasing. Earthquakes have often shaken the whole island, carrying a complete revolution in its geographical physiognomy: such as the rending of mountains—the elevation of some and sinking down of others, the desertion by rivers of their channels and the appearance of new lakes.

Piano Forte Tuners.

This useful class of persons often fall under unjust censures passed upon them by those who, though they play upon the piano, are entirely ignorant of many of its peculiarities. The piano forte is susceptible of the changes of temperature, and when tuned in one temperature will be out of tune in another. Good and well made piano fortes will stand in tune if they are tuned at proper periods. Many people, as they think to avoid expense, will let their instruments remain long out of tune, which is a great detriment to them, as they are less likely to stand well after having been so left.

A piano forte ought justly to be tuned twice a year, at least. First, when you commence with a fire in the room; and second, when a fire is discontinued. By following this course you have the best guaranty that the instrument will remain in tune for the longest period of time.

Again, the instrument should not be suffered to remain below concert pitch; if it is for years tuned below, it will never stand up to the pitch without a great deal of labor, if indeed it ever stand at all.

Many a beautiful instrument is nearly ruined for want of attention to these simple facts.—Yet it will not answer for a professional tuner to recommend these things; if he does, the people will suspect him immediately of selfish motives, and say that he is planning for his own advantege. Owners of piano fortes who are not acquainted with the nature of the instrument, ought to bear these facts in mind when by a yearly outlay of a trifling sum they may save to themselves infinitely more than they expend, by the preservation of their instruments in which they have invested so much.

An Enormous Gas Meter.

A London gas meter of immense size has just been cast and completed at the ironworks of Messrs. Glover in Charles St. Drury Lane, London, which is about to be erected in Covent Garden Theatre for the measurement of gas supplied that establishment by the Chartered Gas Company. It is what is called a dry gas meter,—no water being employed in the process, as in the common meters: and is the invention of a Mr. Defries. It contains two chambers: the upper one holds the machinery,—the lower is divided into six compartments by three moveable diagrams and three fixed partitions. The gas enters at the inlet pipe, whence it passes to the bottom of the meter, and fills each compartment in succession. A continuous supply is kept up by the action on the moveable diaphragms, which act upon the indicating machinery by means of a very simple and ingenious contrivance, that registers the consumption of gas with unerring accuracy on a plate of six dials and indexes from units to millions. The meter is capable of measuring 6000 cubic feet per hour,—and is to measure the supply of 1500 burners. It weighs two tons; is 16 feet in circumference, and 8 in height. The shape is a sexigon, with Gothic devices and ornaments.

Farmers' Wives in Olden Times.

The duties of farmers' wives, in England, in olden times, were somewhat different, than is at present the case in this country.—In the reign of Henry VIII. Sir A. Fitzherbert wrote a treatise, entitled "A Prologue for the Wyve's Occupation," in which he says:—

"It is a wyve's occupation to winnow all maner of cornes, to make malte, washe and wrynge, to make heye, shere corne, and in time of nede, to help her husbande to fill the mucke wayne, or dounge carte, dryve the ploughe, to lode heye, corne and such other, and to go and ryde to the market to sell butter, chese, mylke, egges, chekyns, capons, hennes, pygges, gese, and all maner of cornes.'

How to make the Hair Wavy.

A fashionable newspaper in London thus tells the young ladies how to make their hair wavy. It is too important an affair to be limited to any one country! 'Damp the hair with water, and plait it three or four plaits every night. It will then take the waved form, though combed and brushed next morning.' This is owing to the steaming process it undergoes under the night cap.